

# NEDS ANALYTIC SUMMARY

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## Highlights

**The meta-analysis revealed few comparative studies of women in treatment and pointed to the need for more women-centered programs with enhanced treatment components.**

**CSAT**  
Center for Substance  
Abuse Treatment  
SAMHSA

## Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis



### NEDS Analytic Summary Series

The Center for Substance Abuse Treatment (CSAT) works to improve the lives of those affected by alcohol and other substance abuse, and, through treatment, to reduce the ill effects of substance abuse on individuals, families, communities, and society at large. Thus, one important CSAT mission is to expand the knowledge about effective substance abuse treatment and recovery services. In support of these efforts, CSAT established the National Evaluation Data Services (NEDS) contract to provide a wide array of secondary data analysis products to the substance abuse treatment field.

Specifically, the NEDS project is focused upon providing CSAT with an analytic capability to use existing data to address policy- and practice-relevant topics as well as future research and evaluation activities. NEDS has developed several product lines designed to provide analytic findings to substance abuse treatment policy makers, service providers, services researchers and evaluators in a format that is most useful to the end user.

The Analytic Summary is one of the NEDS product lines. The purpose of the Analytic Summary is to provide a brief summary of each technical report produced by NEDS written in non-technical language. Readers who find the Analytic Summary results of interest can contact the original NEDS technical report authors for more detailed information. Through this process, the NEDS Analytic Summaries provide information to the substance abuse treatment field and promote linkages among different areas in the field.

### This Analytic Summary

This NEDS Analytic Summary is based on the NEDS Technical Report titled *Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-Analysis* (Orwin, R., Francisco, L., and Bernichon, T., May 2001). For a more thorough discussion of the analysis and findings, please obtain a copy of the complete Technical Report. Information for doing so is provided on the last page of this summary.

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# Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis

## **Analytic Importance**

One important function of CSAT is to expand the knowledge about, and the availability of, effective treatment and recovery services for those affected by alcohol and other substance abuse. In sponsoring these analyses of the data they have collected, CSAT is attempting to gain useful insight into the fundamental question: What constitutes effective (and cost-effective) treatment, and for what populations?

Historically, substance abuse treatment programs have been designed for the needs of a predominantly male client population. Despite the growing demand for substance abuse treatment for women, information about the types of treatment services that are most effective for women is limited. A small number of focused literature reviews have been conducted on substance abuse treatment studies, but these have focused primarily on the treatment needs of male clients.

Over the past two decades, researchers and policy makers have begun to identify the characteristics and components of successful treatment programs for women. Program components that enhance the treatment experiences of women include the provision of childcare services, parenting training, women-only therapy groups, self esteem and assertiveness training workshops, and seminars on sexuality and family planning.

To date, no formal quantitative synthesis or meta-analysis of women's treatment literature has been conducted.

## **Analytic Purpose**

This analytic summary describes an effort to fill a significant knowledge gap

by conducting a meta-analysis of published and unpublished treatment outcome studies on the effectiveness of treatment for women. The following questions were addressed:

- How effective for women substance abusers were:
  - Women-only treatment compared to no treatment
  - Women-only compared to mixed-gender treatment programs
  - Enhancements to women-only treatment programs compared to standard women-only treatment?
- On which outcomes did women-only treatment programs have the greatest impact?
- What methodological weaknesses in the women-only treatment outcomes literature limited the conclusions that could be drawn about treatment effectiveness?

These questions are representative of the type of questions that meta-analysis typically addresses.

## **Analytic Approach**

The analytic approach was to conduct a meta-analysis of published and unpublished studies pertaining to treatment of women substance abusers. A meta-analysis is the statistical analysis of a large collection of analytic results from individual studies for the purpose of summarizing and integrating the findings. Each study result is represented by a summary statistic - the effect size - which indicates the magnitude of the effect observed in a study. The effect could be the size of a relationship

**This analysis addressed the following questions:**

- **How effective were different types of treatment for women substance abusers?**
- **On which outcomes did women-only treatment programs have the greatest impact?**
- **What methodological weaknesses limited the conclusions about treatment effectiveness?**



## Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis (cont.)

between variables or the degree of difference between group means.

Meta-analysis attempts to overcome some of the shortcomings of the traditional literature review, including:

- Most traditional literature reviews are limited to published studies. Failure to include unpublished studies can lead to biased conclusions.
- Traditional literature reviews rely on significance tests in primary studies to draw conclusions and cannot rule out false negatives, meaning they may miss treatment effects due to the low statistical power of most treatment research.
- Information overload makes it difficult to summarize large numbers of studies without the aid of quantitative techniques.
- In the traditional literature review there is no statistically sound method of examining the consistency of effects across studies.

Meta-analysis targets the complete universe of studies on a topic, specifies the criteria studies must meet to be included in the analysis, quantifies the outcome of each study (i.e., the effect size) and treats this as the unit of analysis.

The process for this meta-analysis reported here included: defining criteria for study inclusion, conducting a literature search, selecting studies, identifying outcome domains, and conducting quantitative analysis of study outcomes. To qualify for inclusion in this meta-analysis of women's treatment literature, studies had to have at least one quantifiable outcome. These could be physical/medical status (including pregnancy outcomes), knowledge, attitudes, or behav-

iors related to substance abuse. The studies had to compare two or more groups. During the study screening and selection process, two experts in the field of women's substance abuse treatment reviewed the list of identified studies for comprehensiveness.

From the search of studies conducted between 1966 and 2000, 33 studies met the inclusion criteria. These 33 studies were organized into three contrast types:

- **Women-only or women centered treatment vs. comparable women who received no treatment.** Women (and their children, if applicable) treated in a women-only or women-centered program versus comparable women who were untreated controls.
- **Women-only vs. mixed-gender treatment programs:** Women (and their children, if applicable) treated in a women-only or women-centered program versus comparable women treated in a traditional mixed-gender program.
- **Enhanced vs. standard women's treatment:** Women (and their children, if applicable) receiving women-only or women-centered treatment plus one or more female-sensitive enhancements versus comparable women receiving women-only or women-centered treatment without the enhancements.

Program components that enhance the treatment experiences of women include child care services, parenting training, women-only therapy groups, self-esteem and assertiveness training workshops, and seminars on sexuality and family planning.

The meta-analysis included outcome domains in which five or more studies

### Three treatment contrast types were examined:

- **Treatment vs. no treatment**
- **Women-only vs. mixed-gender programs**
- **Enhanced vs. standard treatment programs.**



**Eight types of post-treatment outcomes were included:**

- Alcohol use
- Other drug use
- Psychiatric symptoms
- Psychological well being
- Attitudes/beliefs
- HIV risk-reduction behavior
- Criminal behavior
- Pregnancy outcomes.

## Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis (cont.)

reported outcomes. Of the 22 domains identified through the literature search, eight met the criteria for inclusion:

- Alcohol use
- Other drug use
- Psychiatric symptoms
- Psychological well being
- Attitudes/beliefs
- HIV risk-reduction behavior
- Criminal behavior
- Pregnancy outcomes.

Not all eight outcome domains were available for each of the three contrast types.

The standardized mean difference between groups,  $d$ , is the most widely known effect size formulation for meta-analytic purposes. In this analysis, a single statistic  $d$  was calculated from each study and pooled across studies. The results are framed in terms of small, medium and large effect sizes. The larger the effect size, the greater the impact of the contrast on the selected outcome domains.

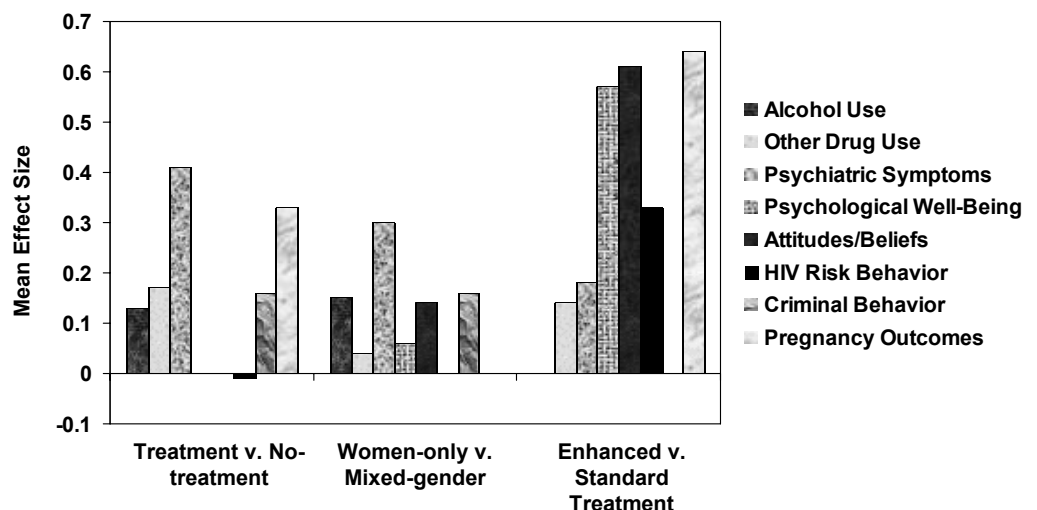
### Findings

#### Effectiveness of Women's Treatment Programs

Exhibit 1 compares the effect size estimates of treatment effectiveness within each of three treatment contrast types.

**Treatment vs. no treatment.** The studies that contrasted treatment versus no treatment for women substance abusers included six outcome domains: alcohol use, other drug use, psychiatric symptoms, HIV risk behavior, criminal behavior and pregnancy outcomes. Two of the six mean effect sizes exceeded the "small" effect size threshold: psychiatric symptoms and pregnancy outcomes. While the psychiatric outcome effect was based only on one study, the mean effect size for pregnancy outcomes was based on seven studies.

**Exhibit 1**  
**Weighted Mean Effect Sizes for Each Outcome Domain**  
**Grouped by Contrast Type**



NOTE: Benchmarks for the effect size of  $d$  are: 0.20 as small, 0.50 as medium, and 0.80 or greater as large.

**Treatment vs. no-treatment contrasts showed largest effects on psychiatric problems and pregnancy outcomes.**

**Women-only vs. mixed gender programs also had notable differences in outcomes on psychiatric problems.**

**Enhanced treatment vs. standard treatment contrasts showed positive impacts on psychological well-being, attitudes/beliefs, pregnancy outcomes, and HIV risk behaviors.**



## **Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis (cont.)**

**Women-only vs. mixed-gender treatment programs.** The women-only versus mixed-gender treatment contrasts included six outcome domains: alcohol use, other drug use, psychiatric problems, psychological well-being, attitudes/beliefs and criminal activity. One of the six effect sizes exceeded the "small" effect threshold: psychiatric problems. This effect size was based on four studies. The findings within this contrast type provide support for experts who have argued that women-only programs are best suited to the treatment needs of women.

**Enhanced vs. standard women's treatment.** The enhanced versus standard women's treatment contrasts showed the largest effects. Of the eight outcome domains, three exceeded the "medium" threshold: improved psychological well-being, improved attitudes/beliefs, and improved pregnancy outcomes. One other outcome, reduced HIV risk behavior, exceeded the threshold of "small" effects. The findings suggest that enriching women's treatment with additional components oriented toward meeting women's needs adds value to the expected effects of standard women-only programs.

Of the three contrast types, the enhanced vs. standard treatment programs had the largest effect sizes on the largest number of outcome domains.

### **Outcomes on Which Women's Treatment Programs Showed the Largest and Most Consistent Effects**

While the effect sizes were positive in practically all outcome domains, there were differences in their magnitude.

■ **Pregnancy outcomes.** Among the three treatment program contrasts, mean effect sizes for pregnancy outcomes were the largest, particularly for the enhanced vs. standard treatment programs but also for the treatment vs. no-treatment contrasts.

■ **Psychiatric outcomes.** The mean effect sizes for reduced psychiatric problems exceeded the "small" effect threshold in two of the contrasts (but not in the enhanced vs. standard treatment programs).

■ **Psychological well-being, attitudes/beliefs, and HIV risk reduction.** Substantial effect sizes were observed for increased psychological well-being, improved attitudes/beliefs and reduced HIV risk behavior, but only in the enhanced vs. standard treatment contrasts.

For the outcome domains of alcohol use, other drug use, and criminal activity, none of the observed mean effect sizes in any of the three contrast types reached the traditional "small" effect threshold.

### **Limitations of this Meta-analysis**

There are many possible reasons for the observed differences across outcome domains in this analysis. The ability to detect differences in behavior depends on the baseline rate of the behavior in the study as a whole. Effect size estimates may be diminished by unreliable measures, such as self-report in some cases. Variation in follow-up intervals may also contribute to differences in outcome domains.

Methodological weaknesses in the research studies conducted to date limit what can be concluded from this meta-



**The mean effect sizes for alcohol use and other drug use were minimal in all three treatment contrasts.**

**Meta-analysis could be improved by additional studies that include:**

- **Comparative design**
- **Quantifiable treatment outcomes**
- **Detailed descriptions of sample, design, and findings**
- **Large sample size**
- **Follow-up data.**



## **Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-Analysis (cont.)**

analysis.

- Many studies had to be excluded because they did not use a comparative design or assess a quantifiable treatment outcome.
- Descriptions of study samples, research designs and findings were often inadequate to meet the information requirements of the coding protocol.
- Some of the 33 studies that did qualify suffered from small sample sizes, weak research designs, and low follow-up rates.

Studies of treatment effectiveness need to provide a clear theoretical basis and describe their treatment model or research procedures clearly enough both to enable others to replicate the study and to support the use of meta-analysis techniques.

### **Implications**

Only a handful of meta-analyses have been conducted in the substance abuse treatment field to date. In attempting to fill the knowledge gap about the treatment of women substance abusers, this meta-analysis of the literature has a number of implications for substance abuse treatment research, policy and practice.

### **Implications for Research**

Much of the existing literature pre-dates current standards for treatment effectiveness studies and evaluation research. Implications for further research include:

- **Expand studies of substance abuse treatment for women.** Only a small number of studies qualified

for this meta-analysis, demonstrating the dearth of information on women-only treatment. Additional studies of substance abuse treatment for women would improve our understanding of what interventions are most effective.

- **Improve reporting of substance abuse treatment research.** Future attempts at meta-analysis would be improved through more information from the primary authors such as description of the treatment services provided and the treatment modalities in which these services were received.
- **Expand the range of treatment outcomes measured by studies.** Improvements in psychological well-being, attitudes/beliefs and pregnancy outcomes suggest that these domains should be included as important treatment outcomes.
- **Consider meta-analyses in substance abuse treatment research.** Increased use of meta-analysis would help to identify knowledge gaps and guide the direction of new primary data collection efforts.
- **Examine the role of methodological factors.** Meta-analysts tend to overestimate the impact of substantive factors and underestimate the impact of other methodological factors such as measurement error or the research design. Conclusions about substantive factors can be misleading unless the methodological factors are understood.
- **Increase emphasis on cost-effectiveness research.** The generally higher costs of specialized treatment for women make it vulnerable

### **Implications for research, policy, and practice:**

- **Improve reporting of substance abuse treatment research by including information on treatment models and treatment services, health care, and social services received.**
- **Support women-centered treatment services as part of overall treatment strategy.**
- **Consider implementing enhancements to standard treatment programs as appropriate to programs and population served.**



## **Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis (cont.)**

to cost containment efforts in the absence of justification supported by cost-effectiveness data. The field would benefit from cost-effectiveness research on women-only treatment.

There is a pressing need for studies that use rigorous, comparative designs with large sample sizes, that test interventions with a clear vision of what will be learned about women's treatment from the results, that describe the target population and the treatment intervention, and that review implementation procedures.

### **Implications for Policy**

Despite the small number of studies available for this analysis, treatment was successful and the outcomes represent the treatment experiences of thousands of women.

This analysis supports expansion or enhancement of substance abuse treatment designed specifically for the needs of women. Implications for policy include:

- **Support women-only treatment programs.** The findings from the women-only versus mixed-gender contrasts and the enhanced versus standard women's treatment contrasts suggest that women-only programs provide a value added to the base rate effects of standard treatment programs.
- **Promote awareness of the need for enhanced services for women in substance abuse treatment.** Program enhancements that address the specific needs of women may yield the best return on investment in women-only treatment programs.

In response to these findings, local policy makers might consider additional funding for women-specific services as part of their overall treatment strategy.

### **Implications for Practice**

The findings of this analysis suggest that targeted enhancements to women-only standard treatment are effective in selected outcome domains. Enhancements were tested in several settings: residential treatment (including therapeutic communities), inpatient (hospital) treatment, methadone maintenance, and outpatient day treatment. Implications for substance abuse treatment practice include:

- **Consider adopting one or more of the enhancements described in the treatment effectiveness studies (e.g., weekly prenatal care, weekly relapse prevention groups) and tailor them to the program and population served.**
- **Increase capacity in women-only programs to serve more women in need of substance abuse treatment.**

Additional capacity and providing women-specific enhancements would help to address the treatment needs of substance abusing women.

# Effectiveness of Women's Substance Abuse Treatment Programs: A Meta-analysis (cont.)

## Future Steps

Understanding which types of substance abuse treatment programs are effective for women is imperative in designing and implementing appropriate programs and services. Programs have been initiated to meet the specific needs of substance abusing women, but cross-study comparisons of outcomes are presently limited in number. This meta-analysis provides information on outcomes for women receiving substance abuse treatment in diverse treatment programs.

Findings from this analysis indicate that women receiving substance abuse treatment benefit from being in a women-only program environment. This was especially true for women receiving treatment in the enhanced programs in which additional services were provided. Additional studies of substance abuse treatment for women would render more information on the treatment settings, programs, and types of services that are available to and most beneficial to women.

## Reference

Orwin, R., Francisco, L., & Bernichon, T. (2001). *Effectiveness of women's substance abuse treatment programs: A meta-analysis*. Report prepared under Contract No. 270-97-7016 for the Center for Substance Abuse Treatment. Fairfax, VA: Caliber Associates.

*For more information, please contact the National Evaluation Data Services analysis team at (703) 385-3200, or visit the NEDS Web site.*

**Find more on the web**  
**<http://neds.calib.com>**

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## Overview of Meta-analysis

This meta-analysis was designed to examine the effectiveness of women's substance abuse treatment programs by quantifying the magnitude of outcomes across published and unpublished studies. To be included, studies had to have at least one quantifiable outcome and compare two or more groups.

References for this meta-analysis were searched for the period January 1966 to September 2000. Literature citation databases included MEDLINE, AIDSLINE, HealthSTAR, PsychINFO, PsychLit, Sociologic Abstracts,

ERIC, EMBASE, ETOH, NTIS, Project Cork, Sociological Abstracts, SocSci, and SciSearch. Searches for fugitive literature (unpublished studies) included technical reports from State and Federal agencies, papers in conference and scientific meeting databases, and dissertations in Dissertations Abstracts International. A total of 33 studies met the inclusion criteria for this meta-analysis. Outcomes were compared in eight domains: alcohol use, other drug use, psychiatric symptoms, psychological well being, attitudes/beliefs, HIV risk-reduction behavior, criminal behavior and pregnancy outcomes.



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